ALLENDIA, A NEW SOUTH AMERICAN GENUS WITH NOTES ON ITS EVOLUTIONARY RELATIONSHIPS TO OTHER GENERA OF ANISODACTYLINA (COLEOPTERA: CARABIDAE: HARPALINI)

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Abstract

Harpalus chilensis Solier, 1849 is not a member of the genus *Harpalus* but belongs in the subtribe Anisodactylina and warrants separate generic rank. The genus *Allendia* is described with *Harpalus chilensis* Solier, 1849 as its type species. This genus is the sister group of *Criniventer* van Emden, 1953, and these 2 possibly evolved in a region west of the Andes of South America and then later dispersed eastward. The valvifer of the ovipositor of *Criniventer rufus* (Brullé, 1838) is also described and illustrated, and a correction made in an earlier characterization of the elytra of this species.

Introduction

The species *Harpalus chilensis* was originally described by Solier (1849), subsequently listed by Csiki (1932) as a member of the genus *Anisotarsus,* and stated by van Emden (1953) to belong to the subtribe Pelmatellina due to having only 2 setae on the anterior margin of the penultimate article of the labial palpus. Henri Goulet (personal communication) noted while revising the North and Middle American species of the genus *Pelmatellus* Bates 1882 that *H. chilensis* specimens actually have 2 long setae and 1 slightly more proximal short fine seta on the anterior margin of the penultimate article of the labial palpus. In contrast, all members of Pelmatellina that he examined lacked the fine short seta and had bisetose palpi. He also noted that specimens of *H. chilensis* bore several long setae at the apex of the prosternal intercoxal process (=apex of prosternal lobe in Noonan, 1973) while all Pelmatellina examined by him lacked such setae.

I have established (Noonan, 1973) that all members of the subtribe Anisodactylina have long setae at the apex of the prosternal intercoxal process and for this paper have also confirmed Goulet's observations by examination of the following Pelmatellines: 14 species of *Lecanomerus* Chaudoir, 1850; 9 species of *Pelmatellus*; and 3 species of *Syllectus* Bates, 1878.

The trisetose condition of the anterior margin of the penultimate article of the labial palpus together with the presence of long setae on the apex of the prosternal intercoxal process indicate that *H. chilensis* is not a member of Pelmatellina but rather belongs in the subtribe Anisodactylina whose member species all have 3 or more setae on the anterior margin of the penultimate article of the labial palpus and long setae at the apex of the prosternal intercoxal process. Therefore, the species *H. chilensis* is herewith transferred to the subtribe Anisodactylina.

RANKING OF *Harpalus chilensis*

Harpalus chilensis is the sister taxon of *Criniventer rufus* (Brullé, 1838) as elucidated in the section entitled "Evolutionary relationships". The question therefore is whether to include *H. chilensis* in *Criniventer* or to rank it in a separate genus.

The most fundamental character separating the 2 species is that specimens of *H. chilensis* have 2 long setae at each side of the pronotum while specimens of *C. rufus* have only 1 such seta at each side. The number of pronotal lateral setae has been accepted by past workers as an important character within the tribe Harpalini for defining and ranking taxa. Jeannel (1942) emphasized the presence of 2 such setae at each side of the pronotum to partly justify ranking *Trichocellus* Ganglbauer, 1892 as a separate genus rather than as a subgenus of *Bradycellus* Erichson, 1837. In my 1973 study of the genera and subgenera of the subtribe Anisodactylina, I confirmed the importance of this character in ranking taxa of the tribe Harpalini, used it to partly justify generic rank for *Progonochaetus* G. Müller, 1838 and *Diachromus,* and concluded that the presence of 2 pairs of pronotal lateral setae in members of Harpalini is an apomorphic condition useful in elucidating the evolutionary relationships of supra-specific taxa. To the best of my knowledge, the tribe Harpalini presently contains no genus in which members of some species have the plesimorphic condition of only 1 pair of pronotal lateral setae and members of other species have the apomorphic condition of 2 pairs of these setae.

Members of *H. chilensis* also differ from those of *C. rufus* by having a narrow, moderately delimited pronotal lateral depression while that of *C. rufus* is broad and very sharply delimited. The condition of a very sharply delimited pronotal lateral depression is an apomorphic feature within the subtribe Anisodactylina and is moderately important for ranking supra-specific taxa. In my 1973 paper I partly justified the proposal of a new subgenus for the single species *Anisodactylus laetus* Dejean, 1829 by reference to the very sharply delimited pronotal lateral depression found in this species.

Less important differences between *H. chilensis* and *C. rufus* are: *H. chilensis* has a complete scutellar stria while *C. rufus* either lacks a scutellar stria or has only a vestigial one; and the dorsal coloration of the 2 species is different. These 2 characters show variation within many supra-specific taxa of Anisodactylina and therefore are not of great value in defining and ranking taxa of this subtribe.

I believe that the presence of 2 pairs of pronotal lateral setae in *H. chilensis,* the difference in pronotal lateral depressions between *H. chilensis* and *C. rufus,* and to a lesser degree the differences in scutellar stria and dorsal coloration require that *H. chilensis* be accorded separate generic status. Therefore, I here describe a new genus for this species.

Allendia Noonan, **New Genus**

TYPE SPECIES: *Harpalus chilensis* Solier, 1849, by present designation and monotypy.

Diagnosis: The presence of 2 long setae on each side of the pronotum and the green color of the dorsum distinguish *Allendia chilensis* from all other taxa of the subtribe Anisodactylina.

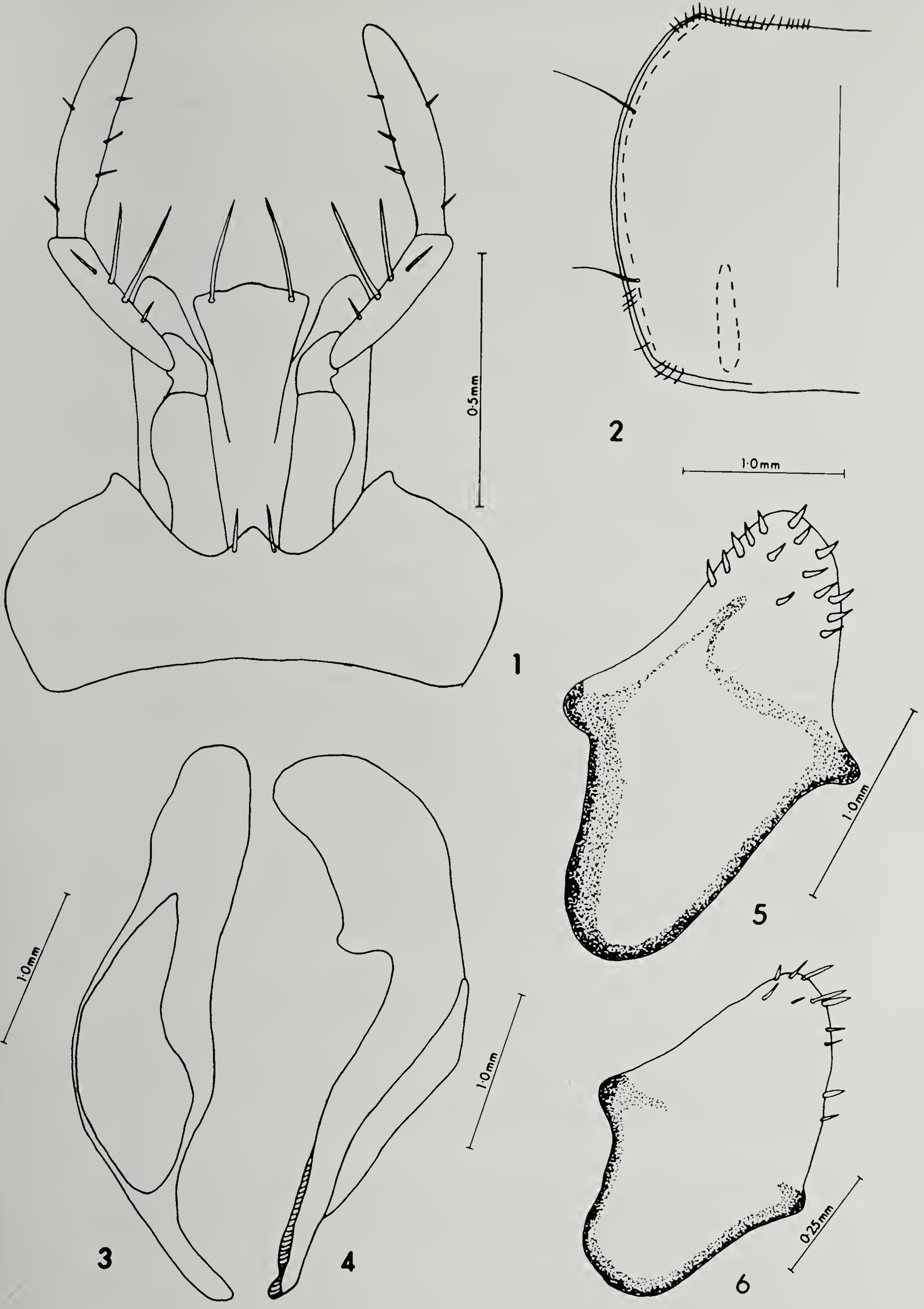

Fig. 1-5: *Allendia chilensis:* 1) ventral aspect of mentum, paraglossae, ligula, labial palpi; 2) dorsal aspect of left half of pronotum; 3) dorsal aspect of median lobe of male genitalia; 4) lateral aspect of median lobe of male genitalia; 5) ventro-lateral aspect of valvifer of ovipositor. 6) Ventro-lateral aspect of valifer of ovipositor of *Criniventer rufus.*

Description: Body length 8.5 to 11 mm.

COLOR: Clypeus reddish black or dark metallic green; remainder of dorsum dark metallic green, elytral apices of some specimens with cupreous tinge.

MICROSCULPTURE: Isodiametric mesh on pronotum and elytra, of such mesh on frons of head but obsolenscent medially in many males.

HEAD: Mandibles average for Anisodactylina. Mentum (fig. 1) with prominent median tooth; 1 seta at each side of tooth base. Mentum and submentum separated by complete transverse suture. Submentum with 1 long inner and 1 short outer seta at each side. Ligula (fig. 1) with apex prominently expanded laterally, with 2 distal ventral setae. Paraglossae (fig. 1) glabrous, slightly longer than ligula. Labial palpi (fig. 1) each with 2 long setae and 1 short fine seta[1] on anterior margin of penultimate article.

THORAX: Pronotum (fig. 2) at each side with 1 long seta in anterior half and 1 long seta in posterior half; with short setae along lateral margin in most specimens; in all specimens with irregular series of fine short setae along at least lateral portions of basal and apical margins.

LEGS: Posterior margins of hind femora each with 3 or more long setae and varied numbers of short fine setae. Dorsum of tarsi pubescent. Fore- and mid tarsi of male with articles 1 to 4 laterally expanded and spongy-pubescent beneath.

ELYTRA: Scutellar striae each with origin near ocellate puncture close to base of stria 2; striae moderate in depth medially, progressively shallower laterally to 8; 8 deep and with ocellate punctures along entire length; intervals flat and 1,3,5,7 each with irregular row of fine short setae extended from apex nearly to base; subapical sinuations obsolescent; sutures obtusely rounded.

ABDOMEN: Sterna with irregular short pubescence; sterna 3 to 5 each with 1 pair of ambulatory setae; sternum 6 with 2 pairs of ambulatory setae. Apex of female tergum 8 broadly rounded.

MALE GENITALIA: Median lobe (fig. 3,4) asymmetrical; apex elongate, curved to right.

OVIPOSITOR: Valvifer (fig. 5) moderately sclerotized, with several spine like distal setae. Stylus of unmodified type described by Noonan (1973:277-278, fig. 237, p. 471).

DERIVATION OF GENERIC NAME: This genus is named for Salvador Allende, the late president of Chile, and is dedicated to his memory.

Since this species was only briefly described by Solier (1849), I here provide a redescription.

My 1973 key to the genera and subgenera of Anisodactylina is here modified to permit identification of the genus *Allendia.*

1. Pronotum with 2 lateral setae on each side (in most specimens anterior seta located before or in mid-region of lateral margin and posterior seta located in region of posterior angle) 2
---- Pronotum with 1 lateral seta on each side (such seta situated in mid-region of lateral margin) 4

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[1] The short fine seta may be difficult to discern; on specimens viewed with a dissecting microscope, it is best seen when the specimens have been relaxed in hot water and are still covered with a film of water.

2(1). Dorsum tricolored, head and elytral bases reddish black, pronotum black, elytral apices violaceous or bluish brown; range England, Europe, Mediterranean area .... *Diachromus* Erichson

---- Dorsum not so colored, reddish black to black or dark metallic green and with dark metallic green or cupreous elytral apices 2A

2A(2). Dorsum dark metallic green, elytral apices dark metallic green or cupreous; range Chile and western Argentina.......... .... *Allendia* new genus

---- Dorsum reddish black to black; range Madagascar and Africa south of the Sahara Desert 3

Allendia chilensis (Solier)

Harpalus chilensis Solier, 1849:262-263.

Description: COLOR: Antenna with first article yellowish to reddish, remaining articles black. Palpi reddish brown to reddish black; apices of some articles lighter in many specimens than remainder of articles. Legs reddish brown to reddish black.

HEAD: Labral apex straight to moderately emarginate medially. Clypeus with apex straight to moderately emarginate medially; 1 long seta at each outer distal angle. Frontal foveae each crescent shaped, continued posterolaterally as clypeo-ocular prolongation extended to eye or not.

THORAX: Pronotum (fig. 2) relatively narrow; sides evenly curved from apex to base; posterior angles obtusely rounded; anterior and posterior beads present laterally; lateral beads complete but narrow; lateral depressions narrow, especially posteriorly, moderately sharply delimited from disc; basal foveae elliptical, moderately deep, each separated from lateral bead by convexity.

HIND WINGS: Full and apparently functional.

Discussion: Solier (1849) did not mention how many specimens he had of *H. chilensis,* but his stating of a single length and a single width for this species suggests he had only 1 specimen. I was unable to locate the type in the Museum National d'Histoire Naturelle, Paris, where Solier's specimens are supposedly located. Fortunately, there is no disagreement among workers as to the identity of *H. chilensis.*

Bionomics: Specimens have been collected from January to April, June to July, and September to December. According to the Philips Series of Comparative Wall Atlases, South American Vegetation, scale 1:9,000,000 (1966) the localities from which I have seen *A. chilensis* are in areas with vegetation of Temperate Rain Forest or Mediterranean Hard-leaved Woodlands. These 2 vegetation types are clearly temperate assemblages of plants. These localities are distributed from sea level to approximately 1000 feet.

Distribution: This species occurs (fig. 7) from coastal areas to the western edge of the Andes in Chile and along the eastern edge of the Andes in western Argentina.

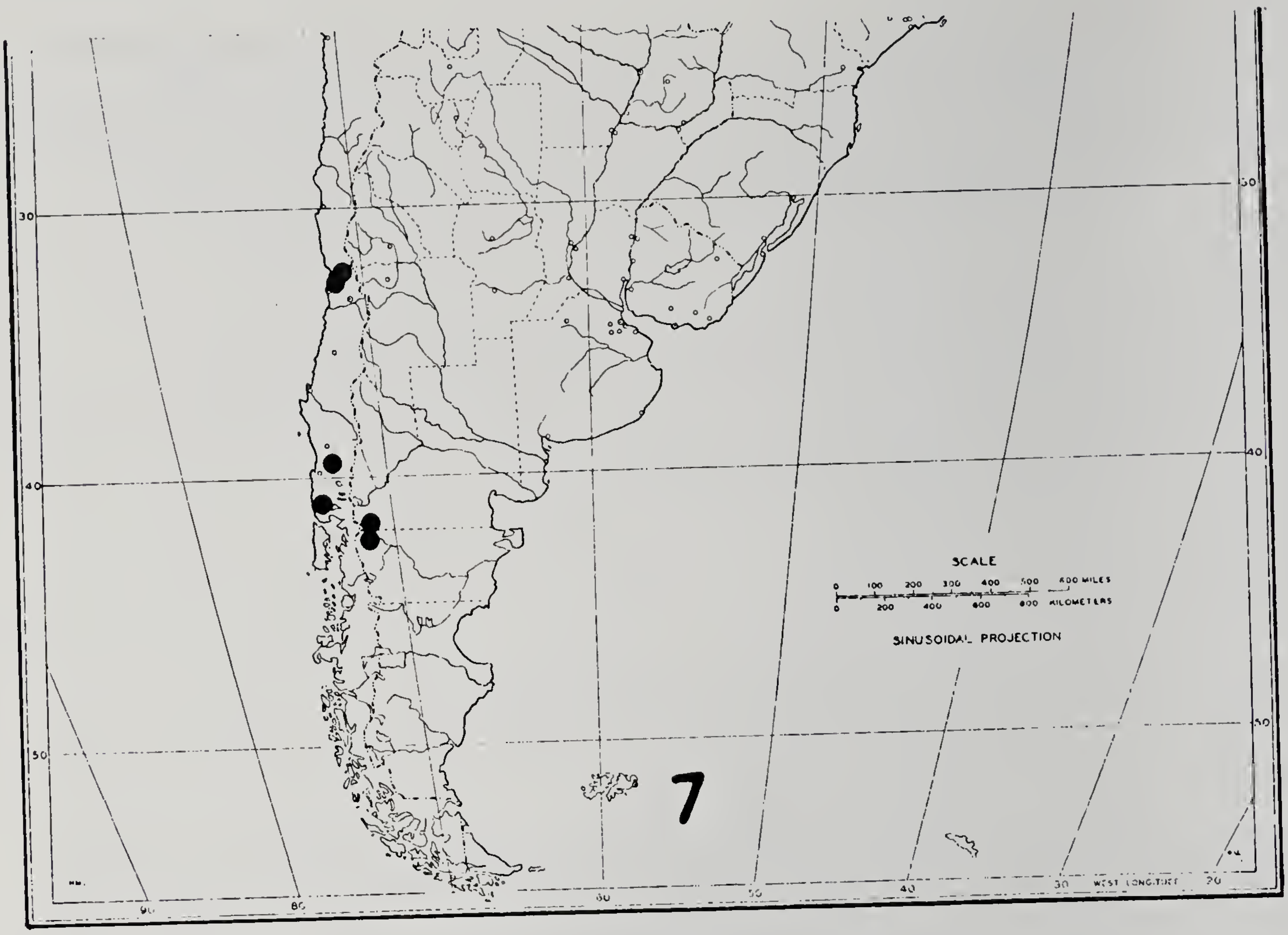

Fig. 7. Distribution of *Allendia chilensis*.

Material examined: (87 specimens, CAS=California Acad. Sci.; LACM=Los Angeles County Museum): ARGENTINA: Province of Chubut: Cholila, Andor Kovacs, (LACM), 7 males, 9 females II-58; Leleque, Andor Kovacs, (LACM), 2 males I-56. Province of Rio Negre: El Bolson, Andor Kovacs, (LACM), 1 male, 2 females I-56, 1 male II-56, 1 male, 4 females II-58, 1 male, 1 female 10-III-59, 1 male, 1 female IV-58, 2 males 1-5-IX-56, 1 female 10-15-X-56, 1 male 8-10-XI-56, 1 female 22-XI-58, 1 female XII-55, 1 male 10-XII-56. CHILE: Province of Cautin: Temuco, Fuentes, (CAS), 3 males; 22 K. E. of Temuco, M. G. Smith, (CAS), 3 males VI-VII-51. Province of Llanquihue: Los Muermos, Ross and Michelbacher collectors, Forest, (CAS), 1 female 19-I-51. Province of Valparaiso: 10 mi. N. of Concon, Ross and Michelbacher collectors, (CAS), 3 males, 7 females 16-XII-50; Miramar, Faz, (CAS), 1 female III. Either province of Valparaiso or city of Valparaiso in this province, (CAS) 3 males, 2 females. No locality information other than "central Chile", (CAS), 3 males, 2 females. I have also seen 21 specimens which bear labels containing contradictory locality information.

EVOLUTIONARY RELATIONSHIPS

(The reader of this section should make reference to pages 388-397, Figure 240 and Table 2 of my 1973 study.)

In Figure 240 and Table 2 of my 1973 paper I mistakenly characterized *Criniventer rufus* (Brullé, 1838) as having dorsal non setigerous punctures on odd, and, in some specimens, also even intervals of the elytra. I had not then been able to examine the ovipositor of this species. I have secured additional specimens and found that the punctures on the elytral intervals each contain a very short and very fine seta (setae were broken off on specimens I examined for 1973 study), and the valvifer of the ovipositor (fig. 6 of this paper) is non-vestigial, with several distal spine-like setae, and the stylus is of the unmodified type described by me (1973:277-278, Fig. 237, p. 471).

The complete transverse suture between the mentum and submentum of specimens of *Allendia chilensis* places the genus *Allendia* in the Notiobioid group. And the genus *Allendia* belongs in the *Criniventer* stock due to members of *A. chilensis* sharing the following 3 features with all other members of this stock: 1) short fine setae along lateral parts of pronotal anterior margin; 2) rows of dorsal setae on elytral intervals; and 3) extra setae on abdominal sterna. It is assumed that the immediate common ancestor of

TABLE OF PLESIOMORPHIC AND APOMORPHIC CHARACTER STATES USED IN FIG. 8.

No.	Character	Character State plesiomorphic	 apomorphic
	Head		
1	ligula apex	not to slightly expanded laterally	strongly expanded laterally
2	dorsal setae on ligula	absent	present
	Pronotum		
3	no. of long setae at each side	1	2
4	short, fine setae	present along lateral part of anterior margin	present along lateral part of anterior and posterior margins and along lateral margins
5	lateral depression	not sharply delimited	moderately sharply delimited (a) very sharply delimited
	Elytron		
6	scutellar stria	present	absent or vestigial
	Ovipositor		
7	valvifer	moderately sclerotized, not vestigial	vestigial
8	articles of stylus	separate	fused

the *Criniventer* stock shared these 3 features which are apomorphic states when comparing supra-specific taxa of Anisodactylina but plesiomorphic states when comparing taxa within the *Criniventer* stock.

The ancestor of the *Criniventer* stock produced the *Pseudanisotarsus* and *Criniventer* lineages each characterized by the plesiomorphic and apomorphic character states shown in Figure 8 and explained in the accompanying table. The *Pseudanisotarsus* lineage is today represented only by the genus *Pseudanisotarsus* Noonan, 1973. The *Criniventer* lineage ultimately gave rise to the sister genera *Criniventer* van Emden, 1953 and *Allendia* (Fig. 8).

The genera of the *Criniventer* stock are each monotypic. The lack of additional species in these 3 genera probably is due either to these genera being recently evolved or more likely to past species extinctions. The *Criniventer* stock is treated in my 1973 paper as probably having evolved by the middle Cretaceous. Unless the 3 extant genera of this stock took a long time to evolve, they are each tens of millions of years old and presumably have had time to acquire and lose species.

The distribution of the taxa of the *Criniventer* stock is as follows: *Pseudanisotarsus* is found in eastern Argentina and possibly Brazil (Noonan, 1973); *Criniventer* is reported by van Emden (1953) from Argentina, Chile, and

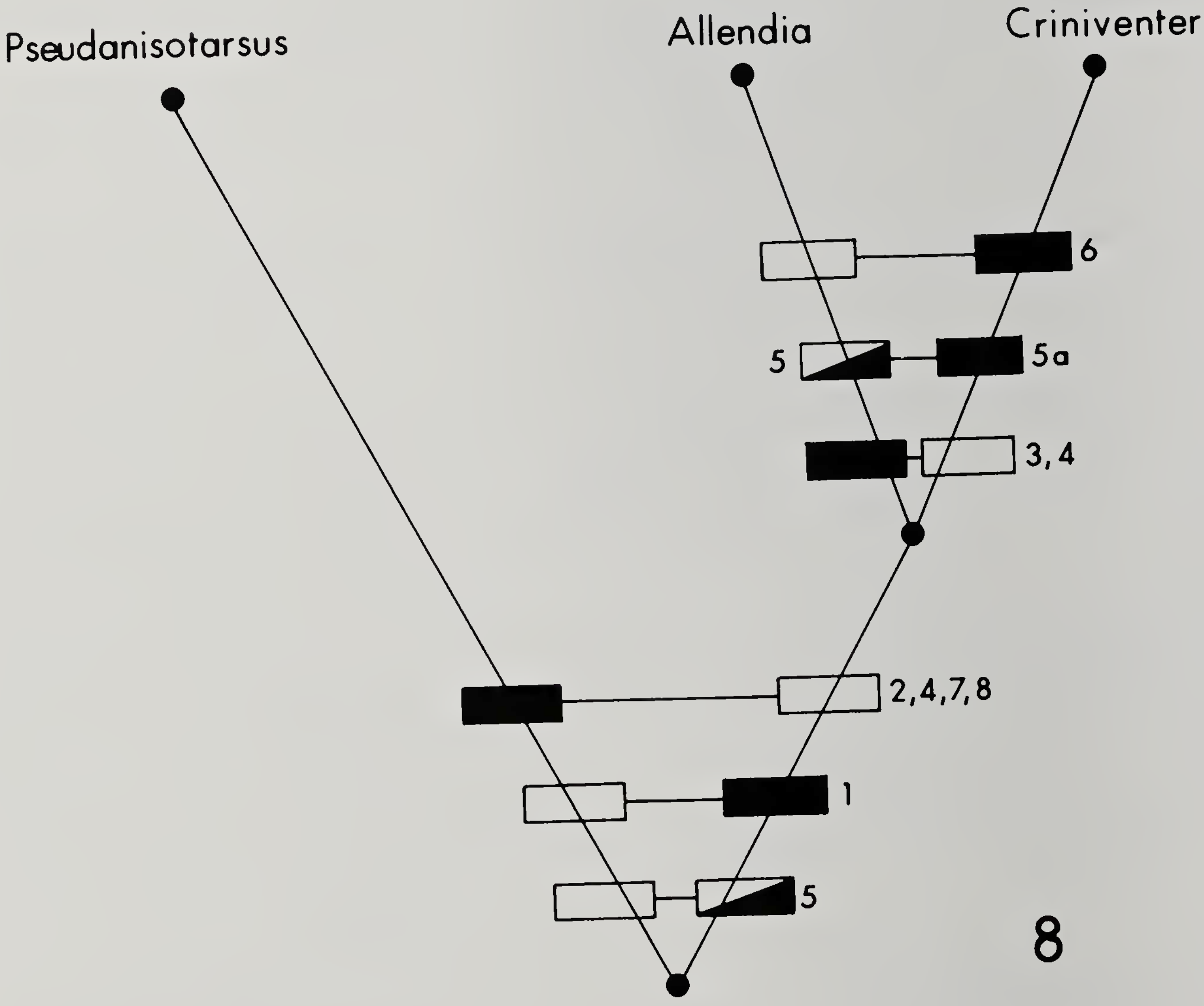

Fig. 8. Postulated sequence of evolution of the genus *Allendia* and other genera of the *Criniventer* stock. (Hollow rectangles denote plesiomorphic character states, half black rectangles denote intermediate apomorphic character states, fully black rectangles denote apomorphic character states).

Uruguay; and *Allendia* is found in Chile and eastern Argentina. The presence of the 2 sister genera *Allendia* and *Criniventer* west of the Andes and the apparent absence of *Pseudanisotarsus* from this region suggest that *Allendia* and *Criniventer* may have evolved west of the Andes and then later dispersed eastwards.

ACKNOWLEDGMENTS

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LITERATURE NOTICES

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We have tried to notice all lists of types that are brought to our attention, and we solicit such information from members. This list, sent by Sr. Peña, contains label data and literature citations for all holotypes, allotypes, paratypes, topotypes, homotypes, and metatypes in his private collection. It contains 282 species of Coleoptera, many with the patronym for Peña; including *Penaus penai* Freude and *Luispenaia paradoxa* Martinez.